



Castilleja linariifolia

Castilleja

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News on Threatened, Endangered, and Candidate Plants in Wyoming

By Julie Reeves, U.S. Fish and Wildlife Service,
Ecological Services Office of Wyoming

(Editor's Note: Years before Threatened or Endangered plants make headlines, they are addressed by U.S. Fish and Wildlife Service [FWS] in a behind-the-scenes process. This contributed article provides an overview of work on each of the six Wyoming plant species recognized as Threatened, Endangered, or Candidate.)

Colorado butterfly plant (*Oenothera coloradensis*, federally threatened; listed as *Gaura neomexicana* subsp. *coloradensis*)

Colorado butterfly plant is a showy, semelparous herbaceous plant that grows in mid-seral riparian and wet-meadow habitats in southeastern Wyoming, as well as along the Front Range of the Rockies in Colorado and extreme southwestern Nebraska. It occurs primarily in habitats created and maintained by streams active in their floodplains and requires some disturbance to maintain its habitat. The Colorado butterfly plant was listed as threatened based on the stressors affecting the species (e.g. indiscriminate spraying of broadleaf herbicides and the disturbance of riparian areas that contain native grasses due to agricultural conversion, water diversions, channelization, and urban development (65 FR 62302; October 18, 2000)). Since the listing, the U.S. Fish and Wildlife Service (Service) has entered into voluntary agreements with landowners with this species on their property in 2004 to allow for annual monitoring and has worked with local and federal government agencies to manage and conserve populations on lands they administer. In 2005, the Service designated certain areas in Wyoming as *critical habitat*¹ for the species (70 FR 1939; January 11, 2005). In 2010, the Service published a *recovery*



Left: Colorado butterfly plant. By Julie Reeves. From: Reeves, J. 2017. Species Biological Report cover for Colorado butterfly plant, Unpublished. See link below.

outline for the species, which depicted conservation and research needs necessary for the species to reach recovery and be delisted from the ESA. In 2012, the Service published a *5-year review* of the species' status in which none of the stressors identified at the time of listing, as well as no new stressors, were adversely affecting the viability of the species. In 2017, the Service, working with partners at local, state, and federal agencies in Wyoming, Colorado, and Nebraska, developed a Biological Report for the Colorado butterfly plant to assess its current status, distribution, and trends in stressors (posted at: <https://ecos.fws.gov/ServCat/Search/Code>, search "83325"). The Service, with the Wyoming Field Office as the lead, is currently evaluating the status of the Colorado butterfly plant to potentially remove the species from the endangered species list. (Cont., p. 4)

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¹ Technical terms in italics are defined in the Glossary (p. 5)

WYNPS News

WYNPS Board Nominations: Fall is the time when nominations to the WYNPS Board are open. Candidates appear on the ballot in December. To nominate any member (including yourself!) for 2018 Board positions, please contact Charmaine Delmatier, President (delmatier@wyoming.com).

New Members: Please welcome the following new members to WYNPS: Heidi Anderson, Gardiner, MT; Milly Bilderback, Greybull; Diane Butler, Sheridan; James Dierberg II, Pinedale; Ashley De Leon, Cheyenne; Jacelyn Downey, Moorcroft; Fernando Furquim, Bagé RS, Brazil; Roger Hayes, Bountiful, UT; Wendy Roth, Black Hawk, SD; Megan Taylor, Gillette; Michael & Lucy Turek, Casper; Tom Zennie, Centennial.

Treasurer's Report: Balance as of 27 Sept 2017: Scholarship = \$1,300; General = \$7,472; Total = \$8,772.

WYNPS Board – 2017

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Also: Bighorn Native Plant Society: Jean Daly, Treasurer (P.O. Box 21, Big Horn, WY 82833)

Contributors to this Issue: Charmaine Delmatier, Robert Dorn, Bonnie Heidel, Julie Reeves, Dorothy Tuthill.

Next Deadline: Please send articles, ideas and announcements for the next issue by 24 Nov.

Message from the President:



On June 10-11, 2017, we had a great annual trip to Devils Tower National Monument and adjacent Black Hills. More than 50 people traveled to our 37th annual field trip meeting from within the U.S. and elsewhere. We were happy to greet new faces along with long-standing members. Our furthest traveler, Fernando Furquim, came from Brazil, and we had attendees from Colorado, South Dakota, Wyoming, and Montana. The Great Plains Native Plant Society came out strong as we joined forces to create a productive botanical experience. We owe a great thanks to the US Forest Service for providing many of our trip leaders. Devils Tower National Monument (Rene Ohms) worked seamlessly with our group so we could host campsites and provide a delicious meal prepared by Christine Galloway from Sundance. I especially liked exploring the historical aspects of the west at the Crook County Museum next door to our meeting hall in Sundance.

We started the memorable weekend event with a moonlight walk on Friday night led by Ryan Sprague, Northern Hills Ranger District, Black Hills NF (BHNF), followed by several wonderful adventurous trips to Dugout Gulch with the incredibly knowledgeable Beth Burkhart, Joyner Ridge with Devils Tower NM, Englewood Springs with local expert Ryan Sprague, McIntosh Fen Botanical Area with Kelly Warnke (Mystic Ranger District, BHNF), and Warren Peaks with Nick Drozda (Bear Lodge Ranger District, BHNF). We were exposed to both cultural and botanical hallmarks occurring in northeast Wyoming nestled in the Black Hills (see photos, p. 3).

It will be tough to top the 2017 annual meeting, but we're excited to announce that in 2018, we will explore the west side of the state to view spectacular tall forb communities, hidden in the rustic hills of the Wyoming Range (Bridger Teton National Forest). Please set aside the weekend of **July 21, 2018** for this special time.

~Charmaine Delmatier, President

Wyoming Native Plant Society
P.O. Box 2449
Laramie, WY 82073

B. E. Nelson Receives Award for Excellence in Wyoming Botany



Above: B. E. Nelson (standing) and Ronald Hartman (sitting), are the two first winners of the Wyoming Native Plant Society professional award

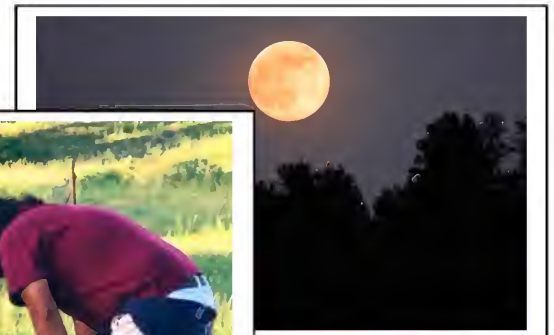
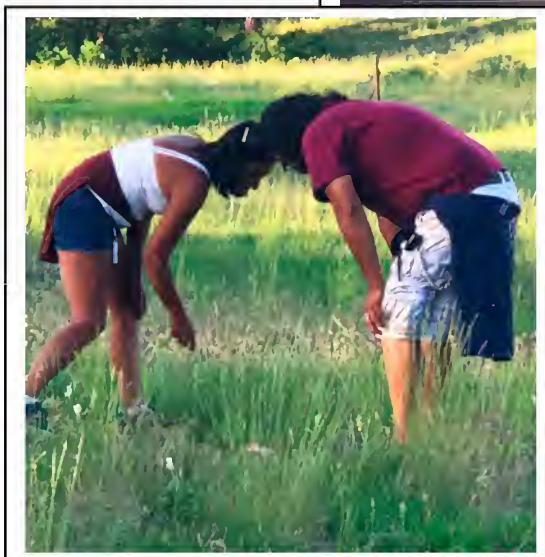
At the 2017 WYNPS Annual Meeting, we proudly recognized Burrell E. "Ernie" Nelson as winner of our professional award. He is the second recipient of the "Ronald L. Hartman Excellence in Wyoming Botany Award" started by WYNPS in 2015.

Ernie is Curator of the Rocky Mountain Herbarium (RM) (announced in <http://www.uwyo.edu/botany/rm-friends/index.html> - see Sept 2016 issue), and was long-time RM Collections Manager. Ernie's master thesis was an unprecedented floristic inventory focusing on the flora of the Medicine Bow Mountains, he was "snatched up" for work at RM while still completing his Botany degree (U-WY), and he has worked there ever since. He contributed 86,510 specimens to the RM, and estimates that he has spent 48+ years in the field both as a birder and botanist. Ernie is co-author of over 28 publications including "*Vascular Plant Flora of the Alpine Zone in the Southern Rocky Mountains*" with R.L. Hartman and J.F. Fowler, and "*Taxonomic Novelties from North America North of Mexico: a 20-Year Vascular Plant Diversity Baseline*" with R.L. Hartman. He was a major consultant to Roger Williams' book "*Aven Nelson of*

Wyoming." He has been the Co-Principal Investigator for 52 funded floristic-related contracts and grants and nearly every summer he has the privilege of training new graduate students in the finer arts of plant collecting.

In addition, Ernie is a wellspring of information, insight, institutional knowledge, and cheer to RM visitors, while promoting Wyoming's flora as part of workshop and tour events at the RM and public plant hikes and walks for the Wyoming Native Plant Society and UW Extension.

2017 WYNPS Annual Meeting – June 10-11 in the Black Hills



Devils Tower Natl Monument (left) and Bear Lodge Mountains (mid and right) were two Black Hills destinations of the 2017 WYNPS Annual Meeting (By Charmaine Delmatier)

News on Threatened, Endangered, and Candidate Plants in Wyoming (cont. from p. 1)

Note: *Oenothera coloradensis* was previously addressed in *Castilleja* issues from 1997-2004 in Vol. 16(1), 17(1), 19(4), 20(2), 21(2), 22(1) and 23(3).

Ute ladies'-tresses orchid (*Spiranthes diluvialis*, currently listed as threatened under ESA)

Ute ladies'-tresses orchid is a 20-50 cm tall perennial, terrestrial orchid that grows in moist soils in mesic or wet meadows near springs, lakes, or perennial streams throughout Wyoming and in surrounding states. It was listed as threatened based primarily on habitat loss and modification, as well as other stressors compounded by small population size and low reproductive rate; it was known from only 10 extant populations in three states (57 FR2048; January 17, 1992). In 1995, a draft *recovery plan* was developed to focus recovery objectives on researching the species, managing known populations, and protecting watersheds to ensure long-term survival of known populations. Since the listing and *recovery plan*, tens of new populations of Ute ladies'-tresses orchid have been discovered and the range has expanded to include five additional states. In a 2004 response to a petition to delist the species, the Service found that a status review should be conducted to determine if the species warranted delisting (69 FR 60605; October 12, 2004). A 2005 status review determined that the species and its populations were more stable than originally suspected and that 35% of all known populations were in protected areas or afforded some form of special management attention, though some threats remained high in some areas (Fertig 2005). In the near future, the Service, with the Utah Field Office as the lead, will conduct a status evaluation of Ute ladies'-tresses, including a range-wide habitat assessment and *species status assessment* (SSA), the latter of which will inform a potential revision of the species' status under the ESA.

Note: *Spiranthes diluvialis* was previously addressed in *Castilleja* issues from 1995-2013 in Vol. 13(2), 17(1), 19(4), 20(2), 21(2), 22(1, 3), 27(4) and 32(4).

Blowout penstemon (*Penstemon haydenii*, currently listed as endangered under ESA)

Blowout penstemon is a short-lived perennial that grows in shifting sand and requires moving sand in blowouts or sand ridges to thrive in Wyoming. It frequently occurs in large, multi-stemmed clumps containing flowering and vegetative stems. Vegetative stems are commonly up to 1 foot tall, but can

sometimes reach nearly 2 feet, and plants often root from stem nodes if stem nodes are buried in sand. When the species was listed in 1987, it was only known from 10 populations in four counties in Nebraska, and was threatened by stabilization of blowout complexes and low probabilities of seed fertilization, maturation, and dispersal (52 FR 32926; September 1, 1987). A *recovery plan* for blowout penstemon in Nebraska was written in 1992, but does not include Wyoming populations, since the species was not discovered in northwest Carbon County, Wyoming until 1999. A 5-year review of the species in 2012 found that the *recovery plan* was insufficient and should be revised to include the Wyoming populations, including their unique genetic composition, habitat characteristics, and persistence, threats, and management strategies. The Service, led by the Nebraska Field Office, is currently evaluating the status of the species in terms of its current and future condition in a SSA, which will seek peer and partner review. Upon completion of this *species status assessment* for blowout penstemon, the Service will initiate a revision to the *recovery plan*.

Note: *Penstemon haydenii* was previously addressed in *Castilleja* issues from 1999-2013 in Vol. 18(3), 19(4), 21(2), 22(4), 24(2), 27(4), 28(4), 31(1, 3), 32(4).

Desert yellowhead (*Yermo xanthocephalus*, currently listed as threatened under ESA)

Desert yellowhead is a tap-rooted perennial with yellow flowers, occupying outwash and escarpment slopes in Fremont County, Wyoming. When the species was listed in 2002, only a single population was known ("Sand Draw"), and it was threatened by surface disturbance resulting from oil and gas development, compaction by vehicles, trampling by livestock, and the potential for stochastic or catastrophic events (67 FR 11442; March 14, 2002). *Critical habitat* was designated around the Sand Draw population in 2004 (69 FR 12278; March 16, 2004). The BLM closed the area designated as *critical habitat* to motorized vehicle use in 2005 (70 FR 40053; July 12, 2005), and then closed the area designated as *critical habitat* from surface entry and mining for 20 years in 2008 (73 FR 5586; January 30, 2008). A BLM Information Memorandum in January 2010 discussed cooperative work between BLM and the Service on efforts to move toward the delisting of the desert yellowhead. A *recovery outline* for desert yellowhead was developed in February 2010. This outline only covered the Sand Draw population, since the second population ("Cedar Rim") was not discovered until

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summer of 2010. A 2012 5-year review of the desert yellowhead found that the threats affecting the species at the time of listing were largely reduced through conservation measures implemented by BLM, and that more information was needed on the species to understand the species' demographics and genetics, as well as vulnerabilities, particularly to the opal mining threat in the Cedar Rim area. (Cont. p 5) The Service has continued to work with BLM on implementing conservation measures and will be conducting an SSA on the desert yellowhead in the next couple of years. Note: *Yermo xanthocephalus* was previously addressed in *Castilleja* issues from 1993-2017 in Vol. 9(1), 15(2), 16(4), 19(1), 20(2) and 32(4).

Fremont County rockcress (*Boechera pusilla*, currently a Candidate under the ESA)

Fremont County rockcress is a small, perennial, apomictic herbaceous plant that occurs in a single population in Fremont County, Wyoming. It was first discovered in the 1980s and was placed on the list of Candidates then. The BLM administers all lands on which the species occurs. Based on protections in place in the BLM's 1997 Green River Range Management Plan and 1998 Secretarial Order 7312 protecting the species' habitat (63 FR 9012; February 23, 1998), the Service removed the Fremont County rockcress from the list of Candidates in 2001 (65 FR 63044; October 20, 2004) on the basis that regulatory mechanisms reduced or eliminated the threats affecting the species. However, after being petitioned to list the species under the ESA based on the species' rarity, the Service issued a 12-month finding that the Fremont County rockcress warranted protection under the ESA due to a threat not fully identified, but listing was precluded by higher priority work (76 FR 33924; June 9, 2011). Since that time, the Service has written annual candidate notices of review updating the known status of the species, and in 2016, determined that the threats affecting the species were low in magnitude and not imminent (81 FR 87246; December 2, 2016). The Service is currently conducting an SSA for the Fremont County rockcress to assess its current and predicted future condition, with peer and partner view, and will help inform ESA status for the species in early 2018. Note: *Boechera pusilla* was previously addressed in *Castilleja* issues from 1997-2013 in Vol. 9(1), 15(2), 16(4), 19(1), 20(2) and 32(4).

Whitebark pine (*Pinus albicaulis*, currently a Candidate under the ESA)

Whitebark pine is a long-lived 5-needled conifer that is narrowly restricted to cold and windy subalpine and timberline zones. The species has a broad range both latitudinally and longitudinally, stretching all the way from northern British Columbia, Canada to southern California and east to the Wind River Range in Wyoming. It is considered a keystone species, where it increases biodiversity and contributes to critical ecosystem functions by stabilizing soils, acting as a nurse tree for other vegetation, regulating runoff, and providing food and shelter for numerous species of wildlife. Seed dispersal occurs almost exclusively through Clark's nutcracker seed caching activity. In a 2011 12-month finding, the Service determined that listing the whitebark pine under the ESA was warranted but precluded by higher priority work within the listing program and the species was added to the Service's Candidate list (76 FR 42631; July 19, 2011). Primary threats to the whitebark pine include: altered fire regimes, climate change, white pine blister rust, mountain pine beetle predation, and the cumulative and synergistic interactions among these threats. Following the 2011 finding, the Service has annually reviewed the status of the species in a Candidate Notice of Review. The Service is currently working with partners on an SSA for the whitebark pine to assess its current and future viability. This SSA will be used to help inform a determination on the ESA status of whitebark pine in early 2019. Note: *Pinus albicaulis* was previously addressed in *Castilleja* issues from 2011-2016 in Vol. 30(3), 32(4), 34(2), 35(2).

GLOSSARY OF TERMS – see links below

Critical habitat

https://www.fws.gov/endangered/esa-library/pdf/critical_habitat.pdf

Five-year reviews of listed species

<https://www.fws.gov/southeast/endangered-species-act/five-year-reviews/>

Recovery outline/ Recovery plan

<https://www.fws.gov/endangered/esa-library/pdf/recovery.pdf>

Species status assessment (SSA)

https://www.fws.gov/endangered/improving_ESA/pdf/SSA_Fact_Sheet-August_2016.pdf

Growing Native Plants

Part 25. Short Shrubs for Ground Cover or Fruit

By Robert Dorn

Juniperus horizontalis, Creeping Juniper, is a creeping evergreen shrub to 6 inches, or rarely 12 inches, tall. The stems can extend for 15 feet or more forming dense mats. The foliage may die back in the center of the plant, especially in warm locations. The leaves are scale-like, yellow-green to blue-green, and aromatic. Male and female cones are borne on separate plants, the female berry-like, blue-purple with a whitish bloom, and to slightly under a half inch across. The plants occur naturally on open dry hills and slopes in the plains, basins, and mountains. They prefer full sun, well drained soil, and tolerate wind, drought, and poor soil. They may require extra water until well established. They are grown for a ground cover, especially for erosion control on slopes. There are many cultivars of different shades of green but many of these were derived from far outside Wyoming. They can be grown from stem cuttings.



Juniperus horizontalis, Crook County

Ribes cereum, Wax Currant, is a slow growing, deciduous shrub to 5 feet tall and half as wide. The leaves are somewhat round in outline with shallow rounded lobes and teeth, to 1 inch long and wide, and turn yellow in fall. The flowers are mostly pinkish, to ¾ inch long, in small clusters at the tips of short shoots. They appear mostly from May to July but may be earlier or later depending on elevation. The fruits are berry-like, orange-red, slightly less than a half inch across, edible but bland and covered with short hairs, seedy, and a bit dry. They are readily eaten by birds. The

plants occur naturally on dryish or moist, open, often rocky slopes in the basins, valleys, and mountains. They prefer moist to dry, open or partly shaded, well drained sites and are drought tolerant. Plants are available in the nursery trade. Young plants can be transplanted. Seed needs cold stratification for 120 to 150 days. They can also be grown from semiripe or hardwood cuttings. The plants could be an alternate host for white pine bluster rust. If you have any 5 needle pines, you may not want to grow this plant or any other *Ribes* species.



Ribes cereum, Albany County

Rubus idaeus, Wild Raspberry, is a prickly, deciduous shrub to 3 or rarely 6 feet tall and spreads from rhizomes to form large patches. The leaves are pinnately compound with 3 to 5 leaflets, each to 2 inches long. The flowers are white, to a half inch across, and solitary in the leaf axils or a few clustered at branch tips. They appear from June to August depending on elevation. The fruits are a typical red raspberry to a half inch across and are edible, but the birds may get them first. The plants occur naturally in open, moist, rocky places in the plains, basins, valleys, and mountains. They prefer full sun and well drained, moist soils. Under dry conditions, they will not flower and fruit. They can be grown from seed sown outdoors in fall after the pulp is removed. They can also be grown from rootstock cuttings. Several cultivars with better fruit are available but many of them are from European varieties.



Rubus idaeus, Lincoln County, Montana

Rubus parviflorus, Thimbleberry, is a deciduous shrub without prickles and grows to 3 feet tall. The leaves are simple, to 9 inches long and wide, and lobed and toothed. The flowers are mostly white and to 1.5 inches across appearing from May to July depending on elevation. The fruit resembles a typical red raspberry but is not as palatable. The plants occur naturally in shaded or part shaded areas in the mountains. They prefer moist but well drained soil and at least partial shade. Propagation is similar to *Rubus idaeus* above.



Rubus parviflorus, Crook County

Viburnum opulus, Highbush Cranberry, is a fast growing deciduous shrub to 5 or rarely as much as 12 feet tall and to 3 feet or rarely more wide. It tends to sucker from the base. The leaves are opposite, 3 lobed, to 5 inches long and nearly as wide, and turn reddish in fall. The flowers are white, to 1 inch across, borne in

small clusters at the branch tips, and appear from May to July. The fruits are berry-like with a single seed, red or reddish-orange, to a half inch across, acidic, and attractive to birds. Fruit set may be better if several plants from different sources are planted together. The plants occur naturally in moist woods and thickets in the Black Hills. They prefer moist, at least partly shaded areas in loamy soil. Several cultivars are available but some are the European variety even if labeled *americanum*. They can be grown from seed which needs 60 to 90 days warm stratification followed by 30 to 60 days cold stratification. Barely cover with soil to allow some light exposure. They can also be grown from hardwood cuttings.



Viburnum opulus, Crook County

To see the above plants in color, go to the newsletter on the Society website.

Tribute: Roger Williams

We regret the loss of WYNPS member, Dr. Roger Williams, who died in Laramie on July 4. Roger was a member of the UW Department of History from 1971-1988, and honored as UW's first Distinguished Professor. He published numerous books on modern European History. After retirement he became an affiliate at the Rocky Mountain Herbarium, authored the biography of Aven Nelson and of Rocky Mountain botanical exploration in "Region of Astonishing Beauty" - see the review at: http://www.wynps.org/newsletters/2004_03.pdf. He was also one of the first Wyoming Native Plant Society life members.

Addition to the Flora: Invasive annual grass

Medusahead (*Taeniatherum caput-medusae*) is an annual grass that was documented by the Natural Resources Conservation Service for the first time in Wyoming in 2016 (*Oakley Ingersoll s.n. RM*). It is "an aggressive invader of disturbed sites in the western United States, where it has become a serious problem on rangelands" (FNA 2007). To date, it has been found in abundance at two locales in Sheridan County, east of Dayton.

Also in Sheridan County, another annual invasive grass, North Africa grass (*Ventenata dubia*; also called wiregrass or ventenata) is spreading. The only prior record for it in Wyoming was a single 1997 Sheridan-area collection (*Douglas 10 RM*). It is now also known from adjoining Campbell County. Ventenata is easily mistaken for cheatgrass or Japanese brome, says Brian Meador, Director - Sheridan Research and Extension Center. Neither of these two invasive grasses are in "A Field Guide to Wyoming Grasses" (Skinner 2010) so the UW Agriculture Experiment Station prepared a handy "Invasive Grass Quick Guide" that is posted on the Wyoming Weed and Pest page (<http://www.wyoweed.org/news/invasive-grass-quick-guide>).

Wyoming Native Plant Society is a non-profit organization established in 1981 to encourage the appreciation and conservation of the native plants and plant communities of Wyoming. The Society promotes education and research through its newsletter, field trips, annual student scholarship and small grants awards. Membership is open to individuals, families, or organizations. To join or renew, please return this form to:

Wyoming Native Plant Society
P.O. Box 2449
Laramie, WY 82073

Name: _____

Address: _____

Email : _____

Check one: ☐ New member ☐ Renewing member
☐ Renewing members, check here if this is an address change.
☐ Check here if you prefer to receive the newsletter electronically

Membership

☐ WYNPS annual membership: \$10.00
☐ WYNPS annual membership + scholarship support: \$20.00
(\$10.00 for membership and \$10.00 for Scholarship fund)
☐ WYNPS Lifetime membership: \$300 (\$150 for membership and \$150 for Scholarship fund)
☐ Sublette Chapter annual membership: \$5.00
☐ Teton Chapter annual membership: \$5.00

Total enclosed: _____ THANK YOU!

Wyoming Native Plant Society
P.O. Box 2449
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